

# EXHIBIT 11

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

WSOU INVESTMENTS, LLC d/b/a  
BRAZOS LICENSING AND  
DEVELOPMENT,

Plaintiff,

v.

HUAWEI TECHNOLOGIES CO., LTD.  
AND HUAWEI TECHNOLOGIES USA  
INC.,

Defendants,

Case No. 2:18-cv-00543-ADA

**JURY TRIAL DEMANDED**

**DECLARATION OF VISHAL SHARMA  
REGARDING CLAIM CONSTRUCTION**

## **I. INTRODUCTION**

1. My name is Vishal Sharma. I have been retained by Defendants Huawei Technologies Co., Ltd., and Huawei Technologies USA, Inc. (collectively, “Defendants” or “Huawei”) to offer my opinions concerning certain issues related to the asserted claims of U.S. Patent No. 6,999,727 (the “’727 Patent”), which has been asserted against Huawei by WSOU Investments, LLC d/b/a Brazos Licensing and Development (“WSOU” or “Plaintiff”).

2. This declaration is based on information currently available to me. If called upon, I would be willing to testify as set forth in this declaration. I reserve the right to continue my investigation and study, which may include a review of documents and information that may be produced, as well as deposition testimony from depositions for which transcripts are not yet available or that may yet be taken in this case. Therefore, I expressly reserve the right to expand or modify my opinions as my investigation and study continue, and to supplement my opinions in response to any additional information that becomes available to me, any matters raised by WSOU other opinions provided by WSOU’s expert(s), or in light of any relevant orders from the Court or other authoritative body.

## **II. QUALIFICATIONS**

3. I have personal knowledge of the facts contained in this declaration, am of legal age, and am otherwise competent to testify.

4. My educational background, career history, publications, and other relevant qualifications provided here are only a summary. My full *curriculum vitae*, including a list of my publications, is attached as Exhibit A.

5. I hold a Bachelor of Technology Degree in Electrical Engineering from the Indian Institute of Technology, Kanpur, and an M.S. Degree in Signals & Systems, an M.S. Degree in

Computer Engineering, and a Ph.D. in Electrical and Computer Engineering from the University of California, Santa Barbara.

6. I have over twenty years of telecommunications and networking experience, spanning areas such as protocol design, system and network architecture, system and network analysis and optimization, and software prototyping.

7. I am a Senior Member (2001) of the IEEE and a Fellow (2005) of the IETE. I have been a Subject Matter Expert (SME) at the Broadband Forum, and have been on the Scientific Committees of the World Telecommunications Conference, V6 World, MPLS World Congress (Paris), Wi-MAX Summit (Paris), FutureCon (New York), iPOP (Japan), and several academic conferences, such as IEEE's ICC, Globecom, and LAN/MAN Workshop. I have been a Guest Editor of six Feature Topic issues of the IEEE Communications Magazine, one of IEEE's most widely read and cited publications. I have been active in standards bodies, such as the IETF and OIF, having contributed to Working Groups focused on diff-serv, traffic engineering, MPLS, virtual private networks, and optical networking technologies, during a period (1998-2004) when some of the foundational technologies widely used in the modern Internet were debated and standardized. I have 10 RFC's published, and was a key contributor to the generalized MPLS standards applicable to SONET/SDH, OTN, and WDM-based lightwave networks.

8. I am a named inventor on 12 U.S. patents issued in the areas of optical routing, the IP control of SONET/SDH networks, MPLS recovery, and high-speed switch architectures and scheduling.

9. I am currently Principal at Metanoia, Inc., where I focus on telecommunications and networking technologies, spanning optical, data-center, wireless, and wireline networks.

From 2004 to 2007, I was also an Associate Professor (Contract) in the Department of Electrical Engineering at the Indian Institute of Technology Bombay (Mumbai, India & Silicon Valley, CA). In 2001, I was Principal Architect at Jasmine Networks, working on MPLS-based control plane design for packet and TDM (SONET/SDH) data for Jasmine's CNS (Converged Network System) platform. From 1998-2000, I was a Research Engineer at the Tellabs Research Center (TRC) in Cambridge MA, where I analyzed and designed high-speed switch router architectures, and also worked on the evolution of SS7 and telephony networks using packet-switched technologies. From 1997-1998 I was a Post-Doctoral Researcher at the Multi-disciplinary Optical Switching Technology (MOST) Center in Santa Barbara, CA, where I worked on all-optical switching architectures.

10. I have worked in, taught courses and industry workshops on, conducted research in, and consulted to industry in several of the technical areas that are material to the patents at issue in this matter, such as optical switch architectures, signaling and control protocol design and analysis, the management and control of telecommunications networks, including SONET/SDH, OTN, and WDM-based lightwave networks, and the operation and analysis of circuit-switched and packet-switched networks and classic telephony networks.

11. Specifically, in the late 1990s, I worked on the architecture, design, and analysis of optical switches for limited wavelength translation. Later, I had the privilege of being one of a handful of experts in the industry to have worked on the evaluation, assessment, and reverse-engineering of nearly a dozen high-speed switch/routers of the day as part of Tellabs' Advanced Business Development team. In the early 2000s, I was involved in the standardization of some of the foundational technologies of the modern Internet – MPLS, L2 and L3 VPNs, traffic engineering, and the IP-based control of packet, TDM, and optical networks. Later, I consulted

to chip, system, and software vendors on the design of switch/router gear, the design and analysis of the optical and IP/Ethernet networks that use such gear, and the control software thereof. Over the last two decades, I have also consulted to both large international and small operators on the design, architecture and evolution of their metro/core networks using both IP/Ethernet and optical technologies, and a wide-variety of IP/Ethernet and optical networking gear. In addition, I have worked with vendors of networking gear, in the definition of the requirements and architecture of gear for metro/core operator networks. I have also worked on the application of IP/Ethernet and optical technologies in data center networks and in wireless access/core networks, and have been active in a number of industry fora on modern networking technologies as an invited keynote speaker, panelist, moderator, and chair. As Leader of the Carrier Ethernet Group, which counts as members over 12,000 networking professionals from 140+ nations, I regularly lead, facilitate, and contribute to discussions on all aspects of modern networking, strategy, and architecture, regularly collaborate with other industry leaders, and also mentor industry professionals from around the world on the latest networking technologies and industry developments.

### **III. LEVEL OF ORDINARY SKILL IN THE ART**

12. I have been asked to offer my opinion regarding the level of ordinary skill in the art with respect to the '727 Patent.

13. In determining the characteristics of a hypothetical person of ordinary skill in the art (POSITA) in the art of the asserted patent at the time of the claimed inventions, I considered the sophistication of the technology involved, and the educational background and experience of those actively working in the field. Additionally, I placed myself back at the priority dates of the asserted patents and considered the engineers and scientists that I had worked with in the relevant industry.

14. For the '727, I conclude that the field of art is telecommunications network technologies. I also conclude that a POSITA in the field of art of the asserted patents would have had at least a bachelor's or a master's degree in computer science, computer engineering, electrical and electronics engineering, telecommunications and networking, or some similar field of endeavor, along with three or more years of experience with networking technologies for the former (bachelor's degree holder) and two or more years' of experience for the latter (Master's degree holder), or the industry equivalent thereof, together with an understanding of telecom network design, including optical networks, optical technologies such as SONET/SDH/OTN, and digital communications. Additional education or work experience in a relevant field may substitute for one of the other aspects of the qualifications stated above. I had at least these qualifications and capabilities myself beginning at least at the time of the earliest priority date of the patents at issue.

#### **IV. SCOPE OF OPINIONS**

15. I have been asked by counsel for Huawei (henceforth, "counsel" or "Counsel") to offer my opinions regarding certain claim construction issues.

16. I am being compensated at my standard rate of \$645 per hour for my work on this case. My compensation does not depend in any way on the content of my testimony and it is not affected by the outcome of the case. I own no shares nor do I have any other ownership interest in Huawei. Furthermore, I have no financial ties to Huawei and I will not financially benefit from any outcome in this case beyond my hourly consulting fee.

#### **V. MATERIALS AND OTHER INFORMATION RELIED UPON**

17. In forming the opinions contained in this report, the documents and sources I reviewed and have relied upon are: the asserted patent, its prosecution history, the Plaintiff's initial complaint for the '727 patent, the parties' claim construction disclosures, and the

Plaintiff's Opening Claim Construction Brief.

18. If necessary and if requested, I may prepare graphics, animations, and other presentation media to further illustrate my opinions.

## **VI. LEGAL STANDARDS RELIED UPON**

19. I am not an attorney, but I have been instructed by Counsel on the legal standards relied upon in my report. The following paragraphs represent my understanding of Counsel's instructions on the applicable legal standards.

20. Counsel has informed me that the terms at issue in the '727 Patent are considered means-plus-function terms, and that there are certain legal principles that are applicable to means-plus-function terms.

21. Specifically, I am informed that means-plus-function claiming occurs when an element in a claim is a "means or step for performing a specified function without the recital of structural, material, or acts in support thereof . . . ." 35 U.S.C. § 112, ¶ 6. In such a case, the claim "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." *Id.* I also understand that where the claim term fails to recite sufficiently definite structure or else recites a function without reciting sufficient structure for performing that function, the claim is governed by § 112, ¶ 6 whether or not the word "means" is used.

22. Once it is determined that a claim term is a means-plus-function term, I understand from counsel that the court applies a two-step analysis. I am told by counsel that the requirements for this analysis are as follows: the first step requires identifying the function through a review of the claim language and the limitations expressly recited by the claims, while the second step requires identifying structure from the patent specification that performs the claimed function. Counsel has also told me that, with respect to means-plus-function claims, a



claim must clearly link or associate a corresponding structure to the means recited in the claim language, and that this disclosed structure must be adequate to achieve the claimed function. Further, I am told that when means-plus-function terms apply to computer-implemented inventions, the structure disclosed in the specification has to be more than a general purpose computer or microprocessor to avoid purely functional claiming, and that generally an algorithm must be disclosed. I also understand that computer-implemented inventions are limited to the structures disclosed in the specification and their equivalents. Counsel has instructed me that when the structure is disclosed by way of an algorithm that algorithm may be expressed as a mathematical formula, in prose, as a flow chart, or in any manner that provides sufficient structure.

23. Additionally, I understand from counsel the following: (a) that whether or not the specification adequately sets forth structure corresponding to the claimed function is a question that is to be evaluated from the perspective of someone of ordinary skill in the relevant art at the time the patent was filed; (b) that if a means-plus-function claim fails to disclose adequate corresponding structure then that claim is indefinite; and (c) that if the intrinsic record of a patent only provides functional language and does not contain adequate corresponding structure, then the claim is indefinite

## **VII. BACKGROUND**

### **A. Overview of the '727 Patent**

24. The '727 Patent "relates to a method for implementing a Performance Monitoring function according to data retrieved through FEC (Forward Error Correction), in a telecommunication network." '727 Patent at Abstract.

25. The '727 Patent explains that FEC is a known mechanism for correcting errors in information transmission environments. *Id.* at 1:22-30. And, that there are two types of FEC:

“in-band FEC” and “out-of-band FEC.” *Id.* at 31-39.

26. The ’727 Patent further explains that known performance monitoring procedures “based on the data of FEC . . . foresee the independent use of two uncorrelated sets of primitive counters for corrected errors in respective information blocks and uncorrected blocks.” *Id.* at 1:47-52. The ’727 Patent notes, however, that this approach “does not deliver sufficient information about the real transmission quality of the path (link).” *Id.* at 53-55. And that “under conditions of bad transmission quality, the error counter does not provide reliable data as it refers to information blocks which can not be corrected through the FEC procedure; furthermore, also the evaluation of BER (Bit Error Rate) is not possible.” *Id.* at 55-59.

27. The ’727 Patent overcomes these problems by providing a Performance Monitoring PM function “which is based upon the correlation of information relating to ‘corrected’ and ‘uncorrected’ information blocks deriving from the implementation of the FEC function.” *Id.* at 1:63-2:3.

28. The ’727 Patent explains this procedure through Figure 1 which “illustrates a flow chart for the explanation of the calculation procedure of PM data which are the subject of the present invention.” *Id.* at 2:29-31.

## VIII. THE ’727 PATENT CLAIM TERMS IN DISPUTE

### A. “means for classifying said blocks as either corrected or uncorrected through the Forward Error Correction function” (claims 4 and 5)

29. I have been asked to make a determination whether the term “means for classifying said blocks as either corrected or uncorrected through the Forward Error Correction function” (1) recites sufficient structure to perform the recited function, and if not (2) whether there is a disclosure in the specification clearly linked to the recited function. It is my opinion that (1) the term does not disclose sufficient structure for performing the recited function and (2)

the specification does not disclose structure that is clearly linked to the recited function. As such, it is my opinion that the claim term is indefinite.

30. This term appears in claims 4 and 5 of the '727 Patent, both of which have been asserted against Huawei in this case. Claim 4 presents one example of how the term is used (emphasis added):

A management system of a telecommunication network, comprising:

[...]

**means for classifying said blocks as either corrected or uncorrected through the Forward Error Correction function**

31. I understand that as a means-plus-function element, this limitation is interpreted to claim a “means” that performs the function of “classifying said blocks as either corrected or uncorrected through the Forward Error Correction function.” In my opinion, however, one of ordinary skill in the art cannot tell what structures are clearly linked to and perform the disclosed function based at least upon the specification of the '727 Patent as well as its prosecution history. This is because neither the patent’s specification nor its prosecution history clearly links the disclosed function to any structures sufficient to perform the claimed function.

32. In reviewing materials provided by WSOU, including Plaintiff’s Opening Claim Construction Brief, I note that WSOU claims the structure is “network node performing Forward Error Correction function, and equivalents thereof.” In support of their claim WSOU references 2:45-65 of the '727 Patent’s specification. However, this reference does not clearly inform the Court, public, Huawei, and persons of ordinary skill in the art as to what the precise structure(s) may be.

33. In my opinion the portion of the specification referenced by WSOU is, at best, a

reference to primitives that “*can be obtained*” by the FEC end function. Taken in context of the entire specification and the claim language this language actually links to the previous clause in claims 4 and 5 for “*obtaining data* through the Forward Error Correction function carried out on the blocks of received data.” There is no mention or discussion within that portion of the referenced specification regarding “classifying” blocks as corrected or uncorrected.

34. I also observe that portion of the specification referenced by WSOU provides that one of the primitives is “corrected errors” rather than “corrected blocks” as the claim requires. While the term “uncorrected blocks” does appear in WSOU’s referenced portion of the specification, the term “corrected block[s]” does not.

35. In addition, I note that in Section B of Plaintiff’s Opening Claim Construction Brief WSOU identified the same structure (“network node performing Forward Error Correction function, and equivalents thereof”) as the structure for the means-plus-function term with the function of “obtaining data through the Forward Error Correction function carried out on the blocks of received data.” In my opinion, one of ordinary skill in the art would understand that the step for *obtaining data* “through the FEC function” cannot be the same as the step for “*classifying said blocks either as corrected or uncorrected* through the FEC function” carried out on the blocks of received data, given that they are distinctly different steps in the claims themselves. Obtaining and classifying, thus, pertain to different functions each of which must be clearly linked to sufficient structure for performing that function.

36. In my opinion there is no disclosure in either the portion of the specification referenced by WSOU (2:45-65) or elsewhere in the specification that discusses classification of a block as corrected or uncorrected. My analysis is reinforced by the fact that the term “classifying” or any of its synonyms is nowhere to be found within the specification. Indeed, the

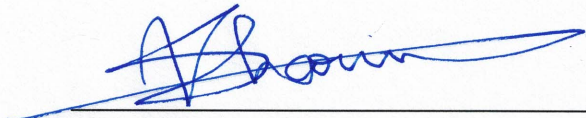
term “classifying” appears exclusively within the claim language.

37. Because the '727 Patent does not disclose sufficient structure(s) that are clearly linked to the stated function, it is my conclusion that claims 4 and 5 of the '755 Patent are indefinite.

**B. “classifying said blocks as either corrected or uncorrected through the Forward Error Correction function” (claims 6 and 7)”**

38. I understand that the parties dispute whether claims 6 and 7 are means-plus-function claims. To the extent the Court determines that claims 6 and 7 are means-plus-function claims it is my opinion that (1) the term does not disclose sufficient structure for performing the recited function and (2) the specification does not disclose structure that is clearly linked with the recited functions for the reasons discussed above in Section A.

I declare under penalty of perjury that the foregoing is true and correct. Executed this 5<sup>th</sup> day of March, 2021 in Union City, CA.

  
Vishal Sharma, Ph.D